

**Initial Study/Negative Declaration for the
Amendments to Bay Area Air Quality
Management District Regulation 9, Rule 9:
Nitrogen Oxides from Stationary Gas Turbines**

Prepared for:

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October 2006

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Chapter 1

Introduction

Purpose of this Document

This Initial Study/Negative Declaration (IS/ND) assesses the environmental impacts of the proposed adoption of amendments to Regulation 9, Rule 9, by the Bay Area Air Quality Management District (BAAQMD or District). This assessment is required by the California Environmental Quality Act (CEQA) and in compliance with the state CEQA Guidelines (Title 14 California Code of Regulations §1400 et seq.). An IS/ND serves as an informational document to be used in the decision-making process for a public agency that intends to carry out a project; it does not recommend approval or denial of the project analyzed in the document. The BAAQMD is the lead agency under CEQA and must consider the impacts of the proposed rule amendments when determining whether to adopt them. The BAAQMD has prepared this IS/ND because no significant adverse impacts would result from the proposed rule amendments.

Scope of this Document

This document evaluates the potential impacts of the proposed amendments on the following resource areas:

- aesthetics,
- agricultural resources,
- air quality,
- biological resources,
- cultural resources,
- geology and soils,
- hazards and hazardous materials
- hydrology and water quality,
- land use planning,
- mineral resources,
- noise,

- population and housing,
- public services,
- recreation,
- transportation and traffic, and
- utilities and service systems.

Impact Terminology

The following terminology is used in this IS/ND to describe the levels of significance of impacts that would result from the proposed rule amendments:

- An impact is considered *beneficial* when the analysis concludes that the project would have a positive effect on a particular resource.
- A conclusion of *no impact* is appropriate when the analysis concludes that there would be no impact on a particular resource from the proposed project.
- An impact is considered *less than significant* if the analysis concludes that an impact on a particular resource topic would not be significant (i.e., would not exceed certain criteria or guidelines established by BAAQMD). Impacts are frequently considered less than significant when the changes are minor relative to the size of the available resource base or would not change an existing resource.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that an impact on a particular resource topic would be significant (i.e., would exceed certain criteria or guidelines established by BAAQMD), but would be reduced to a less than significant level through the implementation of mitigation measures.

Organization of This Document

The content and format of this document, described below, are designed to meet the requirements of CEQA.

- Chapter 1, “Introduction,” identifies the purpose, scope, and terminology of the document.
- Chapter 2, “Description of the Proposed Rule,” provides background information of Regulation 9, Rule 9, describes the proposed rule amendments, and describes the area and facilities that would be affected by the amendments.
- Chapter 3, “Environmental Checklist,” presents the checklist responses for each resource topic. This chapter includes a brief setting description for each resource

area and identifies the impact of the proposed rule amendments on the resources topics listed in the checklist.

- Chapter 4, “References Cited,” identifies all printed references and personal communications cited in this report.

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Chapter 2

Description of the Proposed Rule

Background

Bay Area 2005 Ozone Strategy Control Measure SS-14 proposes amendments to Bay Area Air Quality Management District Regulation 9, Rule 9 (Rule 9-9): Nitrogen Oxides (NO_x) from Stationary Gas Turbines. The proposed amendments would implement the control measure by supplementing existing requirements in Rule 9-9.

Stationary gas turbines regulated under Rule 9-9 are internal combustion engines, typically powered by natural gas, used to generate electricity or mechanical power. Rule 9-9 governs NO_x emissions from stationary gas turbines.

There are 155 permitted turbines located at various facilities in the Bay Area Air Quality Management District (BAAQMD or District). These units cover a wide range of sizes, fuels (natural gas, refinery or waste gas, or liquid fuels), operating configurations (simple cycle or combined cycle), operating modes (continuous, intermittent, or emergency standby), and existing NO_x limits. These turbines currently emit an estimated 6.5 tons/day of NO_x. These estimated emissions were calculated based on a review of each permitted turbine's current fuel use, permit conditions, and source tests.

Ninety two of the 155 gas turbines operate continuously in a wide variety of applications. Forty three of these turbines are large, greater than 10 MW capacity. Twenty one large gas turbines currently emit NO_x below Best Available Retrofit Control Technology (BARCT) levels established by Regulation 9, Rule 9. Another 10 large gas turbines are already equipped with Selective Catalytic Reduction (SCR) control technology. Thirteen are mid-sized turbines, ranging from 3 to 10 MW capacity. Thirty six gas turbines are small, less than 3 MW.

Of the continuously operating turbines, nine large and six mid-size gas turbine power trains burn refinery fuel or waste gas as their primary fuel. Two of the large turbines burn diesel fuel. Refinery fuel gas, waste gas, and liquid fuels generate more NO_x than natural gas because it is more difficult to control turbine flame temperatures when burning a mixture of gases or liquids. There has been very little technology development effort to improve NO_x performance from turbines burning gas or liquid mixtures, so options for significant improvements from these turbines are very limited.

Fifteen turbines operate intermittently as peaking power turbines. Forty eight turbines operate on a limited use basis, less than 877 hours per year. Eleven turbines are used for testing and research, and 37 are used for standby/emergency power. Most of these turbines only operate a few hours each week, or are tested monthly.

The 1988 California Clean Air Act (CCAA) set the overall statewide air quality planning requirements. The CCAA requires the District to adopt BARCT for existing permitted stationary sources. The California Air Resources Board (ARB), in coordination with local air districts, developed a guidance document in 1992 entitled “Determination of Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for the Control of Oxides of Nitrogen from Stationary Gas Turbines” to aid local districts with the adoption of NO_x regulations. The RACT/BARCT Guidelines included a suggested NO_x control rule for air districts to use in developing their respective BARCT rules for the control of NO_x from gas turbines. The District used this ARB guideline as a template for Regulation 9, Rule 9.

Regulation 9, Rule 9 was adopted pursuant to the region’s first plan prepared under the CCAA’s ozone planning requirements, the Bay Area 1991 Clean Air Plan (CAP). Regulation 9, Rule 9 was adopted on May 5, 1993, and amended on September 21, 1994 to accommodate a delay in development of Dry Low NO_x (DLN) combustion technology necessary to meet the NO_x standards. By January 1, 1997 all gas turbines subject to the regulation were required to be in compliance with all applicable standards.

Objectives

In Control Measure SS-14, the District committed to evaluate emissions of NO_x from stationary gas turbines and determine if recent advances in NO_x emissions control technology could be implemented to further reduce NO_x emissions from the stationary gas turbines in the Bay Area. The objective of the amendments for Rule 9-9 is to further reduce NO_x emissions from stationary gas turbines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The Bay Area and neighboring regions are not yet in attainment with the State one-hour ozone standard, so further reductions in ozone precursors, NO_x and reactive organic gases (ROG) are needed. Additional NO_x reductions can be achieved by taking advantage of improvements in Dry Low NO_x (DLN) combustion technology, and improvements in the performance of SCR catalysts that have occurred since this rule was last amended in 1994.

The ARB has set a California one-hour ozone standard to define the level considered safe for human health. The Bay Area is a non-attainment area for the state one-hour standard. Under State law, non-attainment areas must prepare plans showing how they will attain the state standard. The 2005 Ozone Strategy is the most recent planning document for the State one-hour ozone standard. In addition, ARB’s Transport Mitigation Requirements require upwind districts, including the BAAQMD, to adopt measures to reduce transport of ozone and ozone precursors to neighboring air basins.

The 2005 Ozone Strategy includes measures to reduce emissions of the pollutants that form ozone, i.e., nitrogen oxides and reactive organic gases. These measures may be proposals to adopt new regulations or amendments to existing regulations.

Proposed Amendments

The District is proposing amendments to Rule 9-9 to provide the maximum feasible NOx reduction and to reduce ground level ozone in the Bay Area and transport to neighboring air basins during the summer months. These standards reflect best technology advancements since this rule was last amended. Implementation of the proposed standards, including reductions from some turbines that have been recently shut down, would reduce NOx emissions by an estimated 0.43 tons/day. This represents a 7 percent reduction in daily NOx from gas turbines.

The proposed amendments to Regulation 9, Rule 9 categorize turbines by heat input rating rather than megawatt output. Table 2.1 and Table 2.2 show the categories of turbines for which NOx emissions limits are proposed to be reduced.

Table 2.1 Proposed NOx Limits, Full Use Turbines

Turbine Heat Rate	Fuel	
	Natural Gas	Refinery Gas/ Landfill Gas / LPG
5 – 50 MM Btu/hour (0.3 – 3 MW)		2.53 lbs/MW hr or 50 ppm
> 50 – 150 MM Btu/hour (3 – 10 MW)	1.64 lbs/MW hr or 35 ppm	2.34 lbs/MW hr or 50 ppm
<ul style="list-style-type: none"> Water/Steam Injection enhancement available DLN technology available 	1.17 lbs/MW hr or 25 ppm	
> 250 – 500 MM Btu/hour (19 – 40 MW)	0.43 lbs/MW hr or 9 ppm	0.43 lbs/MW hr or 9 ppm
> 500 MM Btu/hour - *** (40+ MW)	0.15 lbs/MW hr or 5 ppm	

Table 2.2 Proposed NOx Limits, Limited Use Turbines

Turbine Heat Rate	Fuel	
	Natural Gas	Liquid Fuel
> 250 – 500 MM Btu/hour (19 – 40 MW)	1.17 lbs/MW hr or 25 ppm	1.97 lbs/MW hr or 42 ppm
> 500 MM Btu/hour (40+ MW)	0.72 lbs/MW hr or 25 ppm	1.21 lbs/MW hr or 42 ppm

Note: Other turbine size categories retain existing NOx limits.

The proposed amendments to Regulation 9, Rule 9 also include a new method of measuring compliance, pounds NOx per megawatt-hr (lbs NOx/MW-hr). The District

intends to retain the current NO_x emission limits as interim standards until new standards come into effect. Finally, the District is proposing to add an exemption from the new emission limits for very limited use turbines that are not used over 400 hours per year.

Ten facilities will have to undertake modifications to their gas turbines to meet the proposed emission limits. One facility, Calpine Gilroy, may install DLN technology or may reduce operating hours to qualify as a low-usage turbine. Three turbines currently equipped with SCR will have to increase the amount of ammonia injected, and the remaining six turbines will have to enhance their water or steam injection technology or may choose to install DLN technology to meet the proposed emission limits.

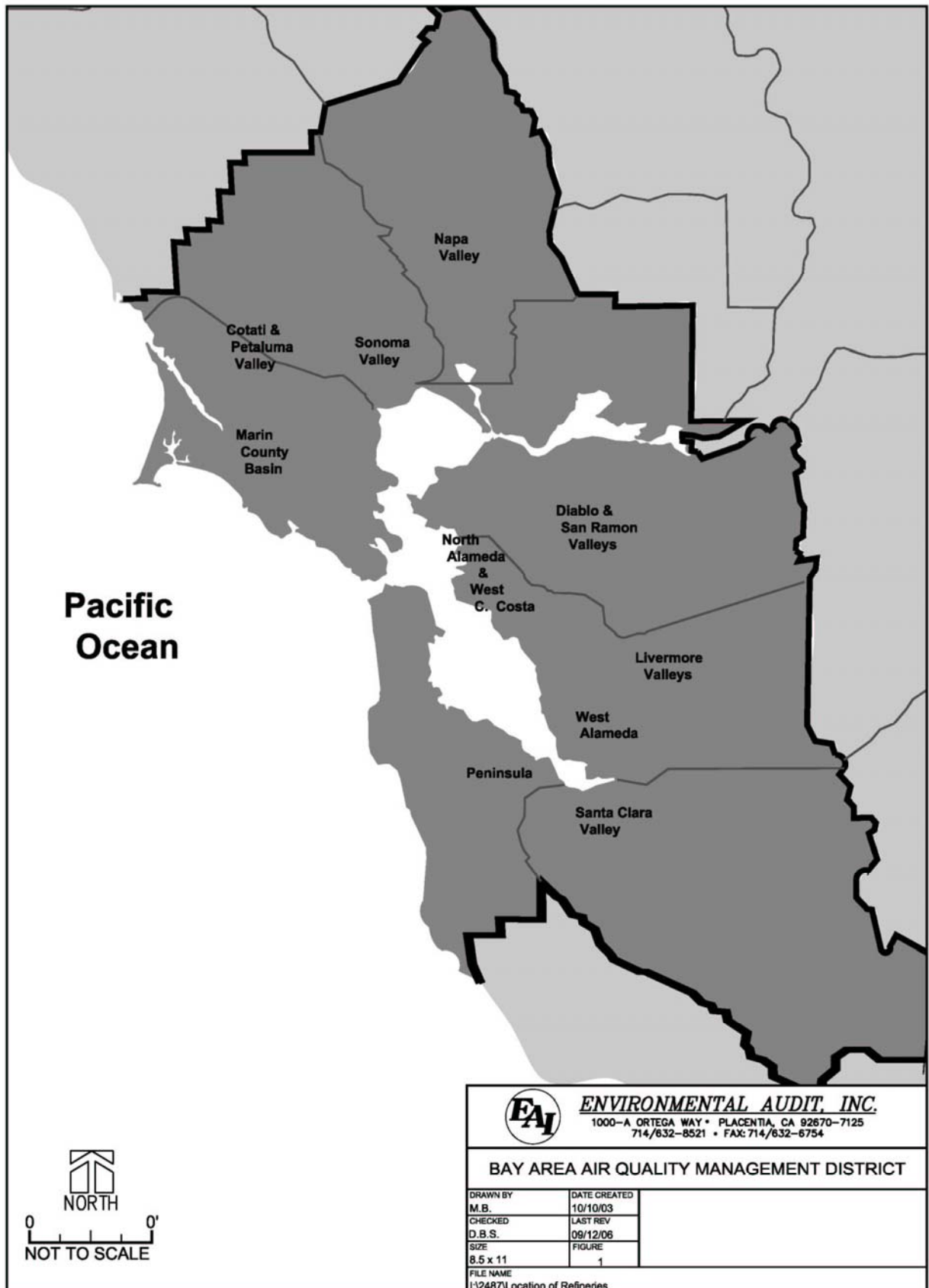
The implementation timetable proposed is 18 months for design and application for an Authority to Construct, and 18 months for construction and startup, or at the next turnaround (which ever is later), but no later than January 1, 2012. Other minor and editorial amendments are also proposed. The District is proposing a July 1, 2010 effective date for these new emission limits. Interim compliance dates for submission of an Authority to Construct for turbine modifications is included. Other proposed amendments provide new definitions; administrative, recordkeeping and monitoring requirements; and test methods where necessary to clarify and enforce the new provisions in the rule.

Affected Area

The proposed rule amendments would apply to facilities under BAAQMD jurisdiction. The BAAQMD jurisdiction includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma counties (approximately 5,600 square miles). The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast. The Basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays.

The facilities affected by the proposed rule amendments are located within the jurisdiction of the Bay Area Air Quality Management District (see Figure 1).

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Chapter 3**Environmental Checklist****ENVIRONMENTAL CHECKLIST FORM**

- 1. Project Title:** Bay Area Air Quality Management District
(BAAQMD) Proposed Amendments to Regulation
9, Rule 9.
- 2. Lead Agency Name and Address:** Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109
- 3. Contact Person and Phone Number:** Guy Gimlen, Planning and Research Division
415/749-4734 or ggimlen@baaqmd.gov
- 4. Project Location:** This rule amendment applies to the area within the
jurisdiction of the Bay Area Air Quality
Management District, which encompasses all of
Alameda, Contra Costa, Marin, San Francisco, San
Mateo, Santa Clara, and Napa Counties and
portions of southwestern Solano and southern
Sonoma Counties.
- 5. Project Sponsor's Name and Address:** Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109
- 6. General Plan Designation:** The rule amendments apply to facilities with
stationary gas turbines that are usually located in
heavy manufacturing or industrial areas.
- 7. Zoning** The rule amendments apply to facilities with
stationary gas turbines that are usually located in
heavy manufacturing or industrial areas.
- 8. Description of Project** See "Background" in Chapter 2.
- 9. Surrounding Land Uses and Setting** See "Affected Area" in Chapter 2.
- 10. Other Public Agencies Whose Approval
Is Required** None

Environmental Factors Potentially Affected:

The environmental factors checked below would potentially be affected by this Project (i.e., the project would involve one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

Determination:

On the basis of this initial evaluation:

- ☒ I find the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be significant effects in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Printed Name

For

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than- Significant Impact	No Impact
I. AESTHETICS.				
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

Many of the facilities with stationary gas turbines affected by the proposed rule amendments are located in the industrial areas throughout the Bay Area. Scenic highways or corridors are generally not located in the vicinity of industrial areas.

Regulatory Background

Visual resources are generally protected by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

I a-d. The proposed amendments to Regulation 9, Rule 9 (Rule 9-9) would further reduce NO_x emissions from stationary gas turbines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The proposed amendments are not expected to require the construction of any major new structures that would be visible to areas outside of the affected facilities and are not expected to result in any adverse aesthetic impacts.

Facilities are expected to comply with Rule 9-9 by installing DLN technology, increasing ammonia injection, or enhancing steam or water injection. Some facilities may cut back on operating hours. Of these compliance methods, construction activities would only be required for installing DLN technology and enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. Once completed, the modifications would not be visible. Further, increased or enhanced ammonia, steam or water injection, is not expected to result in any physical changes to the facilities that would be visible to the surrounding community. The rule amendment would also not require any new sources of light or glare. The facilities where gas turbines are located are already operating and lighted, as necessary. Therefore, no aesthetic impacts are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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II. AGRICULTURE RESOURCES.

In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. Some of these agricultural lands are under Williamson Act contracts.

The facilities with stationary gas turbines affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. Agricultural resources are generally not located in the vicinity of heavy industrial areas.

Regulatory Background

Agricultural resources are generally protected by the City and/or County General Plans, Community Plans through land use and zoning requirements, as well as any applicable specific plans, ordinances, local coastal plans, and redevelopment plans.

Discussion of Impacts

II a-c. The proposed amendments to Rule 9-9 would further reduce NO_x emissions from stationary gas turbines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. Facilities are expected to comply with rule 9-9 by installing DLN technology, increasing ammonia injection or enhancing steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology and enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to agricultural resources are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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III. AIR QUALITY

When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a)	Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b)	Violate any air quality standard or contribute to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

d)	Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e)	Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f)	Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

Meteorological Conditions

The summer climate of the West Coast is dominated by a semi-permanent high centered over the northeastern Pacific Ocean. Because this high pressure cell is quite persistent, storms rarely affect the California coast during the summer. Thus the conditions that persist along the coast of California during summer are a northwest air flow and negligible precipitation. A thermal low pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the San Francisco Bay Area much of the summer.

In winter, the Pacific High weakens and shifts southward, upwelling ceases, and winter storms become frequent. Almost all of the Bay Area's annual precipitation takes place in the November through April period. During the winter rainy periods, inversions are weak or nonexistent, winds are often moderate and air pollution potential is very low. During winter periods when the Pacific high becomes dominant, inversions become strong and often are surface based; winds are light and pollution potential is high. These periods are characterized by winds that flow out of the Central Valley into the Bay Area and often include tule fog.

Topography

The San Francisco Bay Area is characterized by complex terrain consisting of coastal mountain ranges, inland valleys and bays. Elevations of 1,500 feet are common in the higher terrain of this area. Normal wind flow over the area becomes distorted in the lower elevations, especially when the wind velocity is not strong. This distortion is reduced when stronger winds and unstable air masses move over the areas. The distortion is greatest when low level inversions are present with the surface air, beneath the inversion, flowing independently of the air above the inversion.

Winds

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate produces a jet that sweeps eastward but widens downstream producing southwest winds at Berkeley and northwest winds at San Jose; a branch curves

eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Carquinez Strait, the Golden Gate, or San Bruno Gap.

In winter, the Bay Area experiences periods of storminess and moderate-to-strong winds and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, weak onshore flows in the afternoon and otherwise light and variable winds.

Temperature

In summer, the distribution of temperature near the surface over the Bay Area is determined in large part by the effect of the differential heating between land and water surfaces. This process produces a large-scale gradient between the coast and the Central Valley as well as small-scale local gradients along the shorelines of the ocean and bays. The winter mean temperature high and lows reverse the summer relationship; daytime variations are small while mean minimum nighttime temperatures show large differences and strong gradients. The moderating effect of the ocean influences warmer minimums along the coast and penetrating the Bay. The coldest temperatures are in the sheltered valleys, implying strong radiation inversions and very limited vertical diffusion.

Inversions

A primary factor in air quality is the mixing depth, i.e., the vertical dimension available for dilution of contaminant sources near the ground. Over the Bay Area the frequent occurrence of temperature inversions limits this mixing depth and consequently limits the availability of air for dilution. A temperature inversion may be described as a layer or layers of warmer air over cooler air.

Precipitation

The San Francisco Bay Area climate is characterized by moderately wet winters and dry summers. Winter rains (December through March) account for about 75 percent of the average annual rainfall; about 90 percent of the annual total rainfall is received in November to April period; and between June and September, normal rainfall is typically less than 0.10 inches. Annual precipitation amounts show greater differences in short distances. Annual totals exceed 40 inches in the mountains and are less than 15 inches in the sheltered valleys.

Pollution Potential

The Bay Area is subject to a combination of physiographic and climatic factors which result in a low potential for pollutant buildups near the coast and a high potential in sheltered inland valleys. In summer, areas with high average maximum temperatures tend to be sheltered inland valleys with abundant sunshine and light winds. Areas with low average maximum temperatures are exposed to the prevailing ocean breeze and experience frequent fog or stratus. Locations

with warm summer days have a higher pollution potential than the cooler locations along the coast and bays.

In winter, pollution potential is related to the nighttime minimum temperature. Low minimum temperatures are associated with strong radiation inversions in inland valleys that are protected from the moderating influences of the ocean and bays. Conversely, coastal locations experience higher average nighttime temperatures, weaker inversions, stronger breezes and consequently less air pollution potential.

Air Quality

Criteria Pollutants

It is the responsibility of the BAAQMD to ensure that State and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter less than 10 microns in diameter (PM 10), particulate matter less than 2.5 microns in diameter (PM 2.5), sulfur dioxide (SO₂) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride.

The State and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-1. The BAAQMD monitors levels of various criteria pollutants at 26 monitoring stations. The 2005 air quality data from the BAAQMD's monitoring stations are presented in Table 3-2.

Air quality conditions in the San Francisco Bay Area have improved since the Air District was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeds air quality standards have fallen dramatically (see Table 3-3). The Air District is in attainment of the State and federal ambient air quality standards for CO, nitrogen oxides (NO_x), and sulfur dioxides (SO₂). The Air District is not considered to be in attainment with the State PM 10 and PM 2.5 standards.

The 2005 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the State and federal ambient air quality standards for CO, NO₂, and SO₂. The federal 8-hour standard was exceeded on one day in the District in 2005. The Bay Area is designated as a non-attainment area for the California 1-hour ozone standard. The State 1-hour ozone standard was exceeded on 9 days in 2005 in the District, most frequently in the Eastern District (Livermore) (see Table 3-2).

All monitoring stations were in compliance with the federal PM 10 standards. The California PM 10 standards were exceeded on 6 days in 2005, most frequently in San Jose. The Air District did not exceed the federal PM 2.5 standard in 2005 (see Table 3-2).

TABLE 3-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
AIR POLLUTANT	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr. avg. > 0.070 ppm, 8-hr	0.08 ppm, 8-hr avg. >	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hr avg.> 35 ppm, 1-hr avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg.> 0.25 ppm, 1-hr. avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hr avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM10)	20 $\mu\text{g}/\text{m}^3$, annarithmetic mean > 50 $\mu\text{g}/\text{m}^3$, 24-hr average>	50 $\mu\text{g}/\text{m}^3$, annual arithmetic mean > 150 $\mu\text{g}/\text{m}^3$, 24-hr avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter (PM2.5)	12 $\mu\text{g}/\text{m}^3$, annual arithmetic mean>	15 $\mu\text{g}/\text{m}^3$, annual arithmetic mean> 35 $\mu\text{g}/\text{m}^3$, 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 $\mu\text{g}/\text{m}^3$, 24-hr avg. >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 $\mu\text{g}/\text{m}^3$, 30-day avg. >=	1.5 $\mu\text{g}/\text{m}^3$, calendar quarter>	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70%, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

TABLE 3.2
BAY AREA AIR POLLUTION SUMMARY 2005

MONITORING STATIONS	Ozone						CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM10				PM2.5				
	Max 1-Hr	Cal Days	Max 8-Hr	Nat Days	Cal Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/Cal Days	Max 1-Hr	Ann Avg	Nat/Cal Days	Max 24-Hr	Ann Avg	Nat/Cal Days	Ann Avg	Max 24-Hr	Nat Days	Cal Days	Max 24-Hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
NORTH COUNTIES	(ppb)						(ppm)			(ppb)			(ppb)			(µg/m ³)				(µg/m ³)				
Napa	91	0	67	0		61	3.2	2.0	0	60	10	0	--	--	--	18.0	40		0	--	--	--	--	--
San Rafael	81	0	59	0		51	3.0	1.7	0	54	13	0	--	--	--	16.5	39	0	0	--	--	--	--	--
Santa Rosa	72	0	51	0		49	2.5	2.0	0	47	11	0	--	--	--	15.9	39	0	0	33.6	0	28.2	7.6	8.2
Vallejo	90	0	70	0		60	3.9	3.1	0	70	11	0	5	1.2	0	17.3	52	0	1	43.8	0	32.5	9.7	10.0
COAST & CENTRAL BAY																								
Oakland	68	0	45	0		39	3.4	2.4	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Richmond	--	--	--	--		--	--	--	--	--	--	--	6	1.1	0	--	--	--	--	--	--	--	--	--
San Francisco	58	0	54	0		48	2.5	2.1	0	66	16	0	7	1.4	0	20.1	46	0	1	43.6	0	32.6	9.5	9.9
San Pablo	66	0	57	0		52	2.8	1.3	0	54	12	0	6	1.7	0	19.0	42	0	1	--	--	--	--	--
EASTERN DISTRICT																								
Bethel Island	89	0	77	0	2	72	1.1	0.9	0	38	7	0	6	2.0	0	18.5	64	0	1	--	--	--	--	--
Concord	98	1	80	0	2	73	2.2	1.5	0	55	12	0	7		0	16.4	42	0	0	48.9	0	35.1*	9.0*	9.8*
Crockett	--	--	--	--		--	--	--	--	--	--	--	--	--	0	--	--	--	--	--	--	--	--	--
Fairfield	90	0	73	0	2	68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Livermore	120	6	90	1	7	78	3.4	1.8	0	72	14	0	--	--	--	18.8	49	0	0	32.1	0	29.4	9.0	9.4
Martinez	--	--	--	--		--	--	--	--	--	--	--	7	1.7	0	--	--	--	--	--	--	--	--	--
Pittsburg	94	0	78	0	2	69	3.3	1.7	0	58	11	0	9	2.4	0	20.1	57	0	1	--	--	--	--	--
SOUTH CENTRAL BAY																								
Fremont	105	1	78	0	1	60	3.2	2.0	0	69	15	0	--	--	--	17.8	54	0	1	33.4	0	27.6	9.0	9.0
Hayward	*	*	*	*		*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood City	84	0	61	0		57	4.5	2.3	0	62	15	0	--	--	--	20.9	81	0	2	30.9	0	27.8	8.8	9.0
San Leandro	99	1	61	0		52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SANTA CLARA VALLEY																								
Gilroy	87	0	67	0	0	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Los Gatos	110	3	87	1	3	72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose Central*	113	1	80	0	1	61	4.3	3.1	0	74	19	0	--	--	--	22.3	54	0	2	54.6	0	39.0	11.8	11.7
San Jose East	110	1	83	0	1	59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose, Tully Road	--	--	--	--		--	--	--	--	--	--	--	--	--	--	24.2	71	0	4	50.6	0	35.9	10.5	10.3
San Martin	108	2	77	0	3	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sunnyvale	97	1	73	0	1	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Bay Area Days over Standard		9		1	9				0			0			0			0	6		0			

(ppm) = parts per million, (ppb) = parts per billion

TABLE 3-3
TEN-YEAR BAY AREA AIR QUALITY SUMMARY
Days over standards

YEAR	OZONE			CARBON MONOXIDE				NO _x	SULFUR DIOXIDE		PM10		PM2.5
	1-Hr		8-Hr	1-Hr		8-Hr		1-Hr	24-Hr		24-Hr*		24-Hr**
	Nat	Cal	Nat	Nat	Cal	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat
1995	11	28	-	0	0	0	0	0	0	0	0	7	-
1996	8	34	-	0	0	0	0	0	0	0	0	3	-
1997	0	8	-	0	0	0	0	0	0	0	0	4	-
1998	8	29	16	0	0	0	0	0	0	0	0	5	-
1999	3	2	9	0	0	0	0	0	0	0	0	12	-
2000	3	12	4	0	0	0	0	0	0	0	0	7	1
2001	1	15	7	0	0	0	0	0	0	0	0	10	5
2002	2	16	7	0	0	0	0	0	0	0	0	6	5
2003	1	19	7	0	0	0	0	0	0	0	0	6	0
2004	0	7	0	0	0	0	0	0	0	0	0	7	1
2005	0	9	1	0	0	0	0	0	0	0	0	6	0

* PM10 is sampled every sixth day – actual days over standard can be estimated to be six times the numbers listed.

** 2000 is the first full year for which the Air District measured PM2.5 levels.

Toxic Air Pollutants

The precursor chemicals that form ozone are VOCs and NO_x. Some of these VOCs are toxic air contaminants (TACs) and some are known carcinogens. The BAAQMD maintains a network of monitoring stations to monitor certain TACs in ambient air. In addition, the California Air Resources Board (CARB) maintains several monitoring stations in the Bay Area as part of a statewide toxics monitoring effort. The mean ambient concentrations of monitored TACs are listed in Table 3-4 based on monitoring conducted during 2002 for the monitoring stations closest to the refineries. The Richmond station is located at 7th Street downwind from the ChevronTexaco refinery and the Richmond parkway. The Crockett station is located at the end of Kendall Avenue generally downwind of the ConocoPhillips refinery. There are two Concord stations.

Regulatory Background

Criteria Pollutants

At the federal level, the Clean Air Act (CAA) Amendments of 1990 give the U.S. EPA additional authority to require states to reduce emissions of ozone precursors and particulate matter in non-attainment areas. The amendments set attainment deadlines based on the severity of problems. At the state level, CARB has traditionally established state ambient air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved state implementation plans. At a local level, California's air districts, including the BAAQMD, are responsible for overseeing stationary source emissions, approving permits, maintaining emission inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

TABLE 3-4
CONCENTRATIONS OF TOXIC AIR CONTAMINANTS
IN THE BAY AREA⁽¹⁾

CHEMICAL	MONITORING STATION (mean ppb)					
	Crockett	Concord (Treat Blvd)	Richmond	Bethel Island	Concord (Arnold)	Bay Area Mean
Benzene	0.24	0.51	0.44	0.33	0.53	0.47
Carbon Tetrachloride (CCl ₄)	0.11	0.13	0.11	0.11	0.11	0.11
Chloroform (CHCl ₃)	0.02	0.03	0.02	0.01	0.02	0.02
Methylene Chloride (DCM)	0.56	0.29	0.27	0.26	0.28	0.38
Ethylene Dibromide	0.01	0.01	0.01	0.01	0.01	0.01
Ethylene Dichloride	0.05	0.05	0.05	0.05	0.05	0.05
MTBE	0.40	0.71	0.61	0.45	0.86	0.75
Perchloroethylene	0.02	0.03	0.06	0.02	0.07	0.05
1,1,1-Trichloroethane (TCA)	0.07	0.05	0.03	0.03	0.12	0.11
Trichloroethylene	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.45	1.85	1.16	0.71	1.05	1.48
Vinyl Chloride	0.15	0.15	0.15	0.15	0.15	0.15

(1) BAAQMD, Toxic Air Contaminant, 2002 Annual Report, June 2004.

The BAAQMD is governed by a 22-member Board of Directors composed of publicly-elected officials apportioned according to the population of the represented counties. The BAAQMD has the authority to develop and enforce regulations for the control of air pollution within its jurisdiction. The BAAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. It is also responsible for developing air quality planning documents required by both federal and state laws.

Toxic Air Contaminants

TACs are regulated in the District through federal, state, and local programs. At the federal level, TACs are regulated primarily under the authority of the CAA. Prior to the amendment of the CAA in 1990, source-specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) were promulgated under Section 112 of the CAA for certain sources of radionuclides and Hazardous Air Pollutants (HAPs).

Title III of the 1990 CAA amendments requires U.S. EPA to promulgate NESHAPs on a specified schedule for certain categories of sources identified by U.S. EPA as emitting one or more of the 189 listed HAPs. Emission standards for major sources must require the maximum achievable control technology (MACT). MACT is defined as the maximum degree of emission reduction achievable considering cost and non-air quality health and environmental impacts and energy requirements. All NESHAPs were to be promulgated by the year 2000. Specific incremental progress in establishing standards must be made by the years 1992 (at least 40 source categories), 1994 (25 percent of the listed categories), 1997 (50 percent of remaining listed categories), and 2000 (remaining balance). The 1992 requirement was met; however, many of the four-year standards were not promulgated as scheduled. Promulgation of those standards has been rescheduled based on court ordered deadlines, or the aim to satisfy all Section 112 requirements in a timely manner.

Many of the sources of TACs that have been identified under the CAA are also subject to the California TAC regulatory programs. CARB developed three regulatory programs for the control of TACs. Each of the programs is discussed in the following subsections.

Control of TACs Under the TAC Identification and Control Program: California's TAC identification and control program, adopted in 1983 as Assembly Bill 1807 (AB 1807) (California Health and Safety Code §39662), is a two-step program in which substances are identified as TACs, and airborne toxic control measures (ATCMs) are adopted to control emissions from specific sources. Since adoption of the program, CARB has identified 18 TACs, and CARB adopted a regulation designating all 189 federal HAPs as TACs.

Control of TACs Under the Air Toxics "Hot Spots" Act: The Air Toxics Hot Spot Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code §39656) establishes a state-wide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with those emissions. Inventory reports must be updated every four years under current state law. The BAAQMD uses a maximum individual cancer risk of 10 in one million, or an ambient concentration above a non-cancer reference exposure level, as the threshold for notification.

Senate Bill (SB) 1731, enacted in 1992 (California Health and Safety Code §44390 et seq.), amended AB 2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction plan which will reduce the risk below a defined significant risk level within specified time limits. At a minimum, such facilities must, as quickly as feasible, reduce cancer risk levels that exceed 100 per one million. The BAAQMD adopted risk reduction requirements for perchloroethylene dry cleaners to fulfill the requirements of SB 1731.

Targeted Control of TACs Under the Community Air Risk Evaluation Program: In 2004, BAAQMD established the Community Air Risk Evaluation (CARE) program to identify locations with high emissions of TAC and high exposures of sensitive populations to TAC, and to use this information to help establish policies to guide mitigation strategies that obtain the greatest health benefit from TAC emission reductions.

For example, BAAQMD will use information derived from the CARE program to develop and implement targeted risk reduction programs, including grant and incentive programs, community outreach efforts, collaboration with other governmental agencies, model ordinances, new regulations for stationary sources and indirect sources, and advocacy for additional legislation.

Discussion of Impacts

III a. The objectives of the proposed rule amendments are to implement Control Measure SS-14 from the Bay Area 2005 Ozone Strategy in order to help reduce emissions of ozone forming compounds (e.g., NO_x), and make Rule 9-9 more stringent. Because the proposed amendments directly implement the control measure, the proposed amendments are in compliance with the local air quality plan.

III b, c, d, and f. Rule 9-9 was adopted pursuant to the region's first plan prepared under the CCAA's ozone planning requirements, the Bay Area 1991 Clean Air Plan (CAP). Rule 9-9 was adopted on May 5, 1993, and amended in September 21, 1994 to accommodate a delay in development of DLN combustion technology necessary to meet the NO_x standards. By January 1, 1997 all gas turbines subject to the regulation were required to be in compliance with all applicable standards. Control Measure SS-14 in the Bay Area 2005 Ozone Strategy required the BAAQMD to determine if further reductions in NO_x emissions from stationary gas turbines was feasible.

Emissions: Emissions from stationary gas turbines include all the products of combustion. The primary concern with emissions from gas turbines in the Bay Area is NO_x. Gas turbines also produce CO, sulfur oxides (SO_x), ROG, and particulates (PM) emissions, but the contribution from gas turbines for each is relatively insignificant in the total emission inventory for the Bay Area.

Combustion in a stationary gas turbine also produces carbon dioxide (CO₂), a growing concern with respect to climate change. NO_x is formed from combustion of nitrogen in the fuel (fuel NO_x), but the primary source of NO_x is from the oxidation of nitrogen in the air (thermal NO_x). Most gas turbines in the Bay Area burn only natural gas, which is negligible in nitrogen content. A few gas turbines can also burn liquid fuels (propane, butane, jet fuel or diesel fuel), but the nitrogen content in these fuels is very low. CO comes from incomplete combustion.

Controlling Emissions: There are two basic approaches for reducing NO_x emissions: 1) minimize NO_x generated during combustion; and 2) treat exhaust gases with various agents to reduce the NO_x therein. The primary means for controlling generation of NO_x emissions is to prevent NO_x formation by cooling the flame temperature inside the combustion chamber in the gas turbine. In the earliest efforts to reduce combustion emissions, steam or water was injected into the combustor to absorb heat and cool the peak combustion temperature. A more recent approach is to regulate the flow of fuel into the combustor and thoroughly mix the fuel with the air using Dry Low NO_x or DLN combustion technology to reduce combustion temperatures. Most manufacturers have developed DLN technology for their new gas turbines, but offer retrofit DLN on only select models of their older gas turbines. A few manufacturers have incorporated catalysts into their combustor designs to achieve complete combustion at even lower flame temperatures.

The primary means to treat NO_x emissions after they are created is by chemically reacting the NO_x with ammonia or urea in the presence of a catalyst to convert the NO_x back into nitrogen. This process is referred to as Selective Catalytic Reduction (SCR). This technology has demonstrated 90 - 95% effectiveness in reducing NO_x. A new means of treating the NO_x in the flue gas, called SCONOX, has been developed in the last five years. It uses a catalyst to absorb the NO_x, CO, and SO_x from the flue gas. The catalyst is then regenerated, recycling the pollutants back to the inlet of the gas turbine. No turbines in the Bay Area currently use SCONOX technology.

Proposed Amendments: The District is proposing amendments to Rule 9-9 to provide the maximum feasible NO_x reduction and to reduce ground level ozone in the Bay Area and neighboring air basins during the summer months. These standards reflect best technology advancements since this rule was last amended. Implementation of proposed standards would reduce NO_x emissions by an estimated 0.43 tons/day. This represents an 7% reduction in daily NO_x from gas turbines. The gas turbines impacted by amendments to Rule 9-9 are summarized in Chapter 2, Table 2-1.

The District proposes to reduce NO_x emissions limits for the largest (500 MM Btu/hr heat input) gas turbines to 5 ppm from 15 ppm for gas turbines without SCR, and from 9 ppm for gas turbines with SCR. The District proposes to reduce NO_x emissions limits from other sizes of turbines according to heat input, 9 ppm for turbines rated 251 – 500 MM Btu/hr, and 15 ppm for turbines rated 151 – 250 MM Btu/hr. Emission limits from mid-sized turbines, (50 – 150 MM Btu/hr) are proposed to be reduced according to the availability of technology, from 42 ppm to 35 ppm for turbines where enhanced steam or water injection technology is available, and to 25 ppm for turbines with DLN technology available. The District intends to retain the current NO_x emission limits as interim standards until new standards come into effect.

The increased or enhanced ammonia option may result in a slight increase in ammonia deliveries (a maximum of one truck per day) within the Bay Area. This emissions from one truck would not have a noticeable increase in air emissions in the Bay Area. Based on the above air quality analysis, the proposed amendments to Rule 9-9 are expected to result in reductions in NO_x emissions and, thus, provide air quality benefits. No significant adverse impacts to air quality are expected. Increased or enhanced ammonia injection may also result in an increase in ammonia emissions, referred to as ammonia slip. Ammonia reacts to form ammonium sulfate and ammonium nitrate, both of which are a significant fraction of PM 2.5 particles. Limited data suggest that there is an excess of ammonia in the Bay Area atmosphere, mostly from biogenic sources, so PM 2.5 is limited by the availability of nitrate and sulfate compounds. Reducing NO_x reduces the availability of nitrate compounds for PM 2.5 formation. Also, ammonia slip is limited by permit conditions at existing turbines. Consequently, no significant adverse air quality impact from PM 2.5 formation is anticipated from the proposed amendments.

Further construction activities are expected to be limited to facilities that may install new DLN technology or enhance their existing steam or water injection. No major construction activities are expected and no significant increase in construction emissions is expected.

The Bay Area is ROG-limited, that is, there are excess NO_x emissions available in the atmosphere to form ozone. The California Clean Air Act and CARB Transport Mitigation Requirements both require reductions in NO_x in the Bay Area, and, ultimately, a reduction is necessary to meet the stringent California ozone standards in the Bay Area and neighboring air basins.

NO_x functions not only as a precursor to ozone formation, but also reacts with ozone, destroying it. This latter process is referred to as “scavenging.” Because of this, large reductions in NO_x from a significant point source can result in a potential adverse air quality impact – an increase in ozone at a nearby area downwind from the source, termed an ozone “hot spot.” The phenomenon of ozone hot spots was addressed in the 1991 Clean Air Plan and Program Environmental Impact Report and subsequently in the rules adopted to reduce NO_x from refineries (Regulation 9, Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators and Process Heaters in Petroleum Refineries) and electric power generating boilers (Regulation 9, Rule 11: Nitrogen Oxides and Carbon Monoxide from Electric Power Generating Steam Boilers). These are the only sources where the NO_x emission reduction has been significant enough at the source to create a potential adverse impact.

Ozone modeling done in 1993 for Regulation 9, Rule 10 and Rule 11 projected a potential ozone increase near the sources of up to one part per hundred million (.01 ppm) due to NO_x reductions. Regulation 9, Rule 10 reduced NO_x emissions by 21 tons per day, and Regulation 9, Rule 11 reduced NO_x emissions from 10 to 26 tons per day. The modeling also projected a commensurate reduction in ozone farther downwind. In each case, the projected adverse impact was not judged to be significant and a Negative Declaration was prepared. The projected reduction from the proposed amendments to Regulation 9, Rule 9 is less than one tenth the magnitude of Rule 10 and 11 reductions, and would not produce a nearby ozone hot spot. Consequently, no impacts from the ozone hot spot phenomena are anticipated.

Mid-sized turbines, those in the 50 – 150 MM Btu/hr range, may use enhanced water or steam injection to meet a proposed NO_x limit of 35 ppm. Water or steam cools the flame temperature, which may lead to less efficient combustion. Less efficient combustion produces CO. Permitted turbines already have permit conditions that limit CO, and the Bay Area is in attainment for federal and state CO standards. Because of the existing permit condition limitations, any CO increase would not be anticipated to be significant.

III e. The proposed project is not expected to result in an increase in odors. The amendments to Rule 9-9 propose improved technology for reducing NO_x emissions from stationary gas turbines. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Facilities that comply using increased ammonia injection have the potential to generate additional ammonia emissions. Ammonia can have a strong odor; however, the proposed project is not expected to generate substantial ammonia emissions. Ammonia emissions (ammonia slip) are already limited by existing permit conditions. Since exhaust emissions are buoyant as a result of being heated, ammonia will disperse and ultimate ground level concentrations will be substantially lower than 5 ppm, one of the common permit condition limits. Five ppm is below the odor threshold for ammonia of 20 ppm (OSHA, 2005). Potential odor impacts from the proposed project are not expected to be significant. Therefore, no significantly adverse incremental odor impacts are expected due to the proposed rule amendments.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. A wide variety of biological resources are located within the Bay Area.

The facilities affected by the proposed rule amendments are located in the Bay Area-Delta Bioregion (as defined by the State's Natural Communities Conservation Program). This Bioregion is comprised of a variety of natural communities, which range from salt marshes to chaparral to oak woodland. The facilities affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. The affected facilities have been graded to develop the various industrial structures and are typically, surrounded by other commercial and industrial facilities. Native vegetation, other than landscape vegetation, has generally been removed from operating portions of the industrial facilities to minimize safety and fire hazards.

Regulatory Background

Biological resources are generally protected by the City and/or County General Plans through land use and zoning requirements which minimize or prohibit development in biologically sensitive areas. Biological resources are also protected by the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service and National Marine Fisheries Service oversee the federal Endangered Species Act. Development permits may be required from one or both of these agencies if development would impact rare or endangered species. The California Department of Fish and Game administers the California Endangered Species Act which prohibits impacting endangered and threatened species. The U.S. Army Corps of Engineers and the U.S. EPA regulate the discharge of dredge or fill material into waters of the United States, including wetlands.

Discussion of Impacts

IV a – f. No impacts on biological resources are anticipated from the proposed rule amendments which would apply to existing facilities with stationary gas turbines. The turbines already exist and are located within the confines of existing industrial facilities. The existing facilities have been graded and developed and biological resources, with the exception of landscape species, have generally been removed. Construction activities are limited to minor activities associated with those facilities that will install DLN technology or enhance existing steam or water injection. These construction activities would involve minor changes to existing gas turbines. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to biological resources are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside a formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural and open space uses. Cultural resources are defined as buildings, sites, structures, or objects which might have historical architectural, archaeological, cultural, or scientific importance.

The Carquinez Strait represents the entry point for the Sacramento and San Joaquin Rivers into the San Francisco Bay. This locality lies within the San Francisco Bay and the west end of the Central Valley archaeological regions, both of which contain a rich array of prehistoric and historical cultural resources. The areas surrounding the Carquinez Strait and Suisun Bay have been occupied for millennia given their abundant combination of littoral and oak woodland resources.

The facilities with stationary gas turbines affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. The sites have been graded to develop the various industrial structures and are typically surrounded by other commercial and industrial facilities. Cultural resources are generally not located within the operating portions of industrial facilities.

Regulatory Background

The State CEQA Guidelines define a significant cultural resource as a “resource listed or eligible for listing on the California Register of Historical Resources” (Public Resources Code Section 5024.1). A project would have a significant impact if it would cause a substantial adverse change in the significance of a historical resource (State CEQA Guidelines Section 15064.5(b)). A substantial adverse change in the significance of a historical resource would result from an action that would demolish or adversely alter the physical characteristics of the historical resource that convey its historical significance and that qualify the resource for inclusion in the California Register of Historical Resources or a local register or survey that meets the requirements of Public Resources Code Sections 50020.1(k) and 5024.1(g).

Discussion of Impacts

V a – d. No impacts on cultural resources are anticipated from the proposed rule amendments that would apply to existing facilities with stationary gas turbines. The turbines already exist and are located within the confines of existing facilities. The existing facilities have been graded and developed. Construction activities are limited to minor activities associated with those facilities that will install DLN technology or enhance existing steam or water injection technology. These construction activities would involve minor changes to existing gas turbines and only one facility is expected to install DLN. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to cultural resources are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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VI. GEOLOGY AND SOILS.

Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Strong seismic groundshaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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| b) | Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) | Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) | Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) | Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

The affected facilities with stationary gas turbines are located in the natural region of California known as the Coast Ranges geomorphic province. The province is characterized by a series of northwest trending ridges and valleys controlled by tectonic folding and faulting, examples of which include the Suisun Bay, East Bay Hills, Briones Hills, Vaca Mountains, Napa Valley, and Diablo Ranges.

Regional basement rocks consist of the highly deformed Great Valley Sequence, which include massive beds of sandstone inter-fingered with siltstone and shale. Unconsolidated alluvial deposits, artificial fill, and estuarine deposits, (including Bay Mud) underlie the low-lying region along the margins of the Carquinez Strait and Suisun Bay. The estuarine sediments found along the shorelines of Solano County are soft, water-saturated mud, peat and loose sands. The organic, soft, clay-rich sediments along the San Francisco and San Pablo Bays are referred to locally as Bay Mud and can present a variety of engineering challenges due to inherent low strength, compressibility and saturated conditions. Landslides in the region occur in weak, easily weathered bedrock on relatively steep slopes.

The San Francisco Bay Area is a seismically active region, which is situated on a plate boundary marked by the San Andreas Fault System. Several northwest trending active and potentially active faults are included with this fault system. Under the Alquist-Priolo Earthquake Fault Zoning Act, Earthquake Fault Zones were established by the California Division of Mines and Geology along “active” faults, or faults along which surface rupture occurred in Holocene time (the last 11,000 years). In the Bay area, these faults include the San Andreas, Hayward, Rodgers Creek-Healdsburg, Concord-Green Valley, Greenville-Marsh Creek, Seal

Cove/San Gregorio and West Napa faults. Other smaller faults in the region classified as potentially active include the Southampton and Franklin faults.

Ground movement intensity during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geological material. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. Earthquake ground shaking may have secondary effects on certain foundation materials, including liquefaction, seismically induced settlement, and lateral spreading.

Regulatory Background

Construction is regulated by the local City or County building codes that provide requirements for construction, grading, excavations, use of fill, and foundation work including type of materials, design, procedures, etc. which are intended to limit the probability of occurrence and the severity of consequences from geological hazards. Necessary permits, plan checks, and inspections are generally required.

The City or County General Plan includes the Seismic Safety Element. The Element serves primarily to identify seismic hazards and their location in order that they may be taken into account in the planning of future development. The Uniform Building Code is the principle mechanism for protection against and relief from the danger of earthquakes and related events.

In addition, the Seismic Hazard Zone Mapping Act (Public Resources Code §§2690 – 2699.6) was passed by the California legislature in 1990 following the Loma Prieta earthquake. The Act required that the California Division of Mines and Geology (DMG) develop maps that identify the areas of the state that require site specific investigation for earthquake-triggered landslides and/or potential liquefaction prior to permitting most urban developments. The act directs cities, counties and state agencies to use the maps in their land use planning and permitting processes.

Local governments are responsible for implementing the requirements of the Seismic Hazards Mapping Act. The maps and guidelines are tools for local governments to use in establishing their land use management policies and in developing ordinances and review procedures that will reduce losses from ground failure during future earthquakes.

Discussion of Impacts

VI a. The turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities. Construction activities would only be required for installing DLN technology and enhancing existing steam or water injection and would involve minor changes to existing gas turbines. New structures must be designed to comply with the Uniform Building Code Zone 4 requirements since the proposed project is located in a seismically active area. The local cities and counties are responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major

earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

Facilities that will install DLN technology will be required to obtain building permits, as applicable, for all new structures at the site. The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since the project will be required to comply with the Uniform Building Codes.

VII b. The turbines already exist and are located within the confines of existing facilities. Construction activities would only be required for installing DLN technology or enhancing steam or water injection and would involve minor changes to existing gas turbines. Therefore, the proposed amendments are not expected to result in substantial soil erosion or the loss of topsoil as no major construction activities would be required.

VII c – e. The turbines already exist and are located within the confines of existing facilities so no major construction activities are expected. The facilities already exist, therefore no additional structures would be constructed on a geologic unit or soil that is unstable or that would become unstable, or potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse. Likewise, no structure would be constructed on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. Compliance with the Uniform Building Code would minimize the impacts associated with existing geological hazards. Construction would not affect soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater. Therefore, no impacts to geology and soils are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:

a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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| c) | Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) | Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) | Be located within an airport land use plan or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) | Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) | Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) | Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Setting

Many of the affected facilities handle and process large quantities of flammable, hazardous, and acutely hazardous materials. Accidents involving these substances can result in worker or public exposure to fire, heat, blast from an explosion, or airborne exposure to hazardous substances.

The potential hazards associated with industrial activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facility. The hazards that are likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions, including the following events.

- **Toxic gas clouds:** Toxic gas clouds are releases of volatile chemicals (e.g., anhydrous ammonia, chlorine, and hydrogen sulfide) that could form a cloud and migrate off-site, thus exposing individuals. “Worst-case” conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate rather than disperse.

- **Torch fires (gas and liquefied gas releases), flash fires (liquefied gas releases), pool fires, and vapor cloud explosions (gas and liquefied gas releases):** The rupture of a storage tank or vessel containing a flammable gaseous material (like propane), without immediate ignition, can result in a vapor cloud explosion. The “worst-case” upset would be a release that produces a large aerosol cloud with flammable properties. If the flammable cloud does not ignite after dispersion, the cloud would simply dissipate. If the flammable cloud were to ignite during the release, a flash fire or vapor cloud explosion could occur. If the flammable cloud were to ignite immediately upon release, a torch fire would ensue.
- **Thermal Radiation:** Thermal radiation is the heat generated by a fire and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.
- **Explosion/Overpressure:** Process vessels containing flammable explosive vapors and potential ignition sources are present at many types of industrial facilities. Explosions may occur if the flammable/explosive vapors came into contact with an ignition source. An explosion could cause impacts to individuals and structures in the area due to overpressure.

For all affected facilities, risks to the public are reduced if there is a buffer zone between industrial processes and residences or other sensitive land uses, or the prevailing wind blows away from residential areas and other sensitive land uses. The risks posed by operations at each facility are unique and determined by a variety of factors. The facilities affected by the proposed amendments tend to be located in industrial areas which help minimize public exposure in the event of a release.

Regulatory Background

There are many federal and state rules and regulations that affected facilities must comply with which serve to minimize the potential impacts associated with hazards at these facilities.

Under the Occupational Safety and Health Administration (OSHA) regulations [29 Code of Federal Regulations (CFR) Part 1910], facilities which use, store, manufacture, handle, process, or move highly hazardous materials must prepare a fire prevention plan. In addition, 29 CFR Part 1910.119, Process Safety Management (PSM) of Highly Hazardous Chemicals, and Title 8 of the California Code of Regulations, General Industry Safety Order §5189, specify required prevention program elements to protect workers at facilities that handle toxic, flammable, reactive, or explosive materials.

Section 112 (r) of the Clean Air Act Amendments of 1990 [42 U.S.C. 7401 et. Seq.] and Article 2, Chapter 6.95 of the California Health and Safety Code require facilities that handle listed regulated substances to develop Risk Management Programs (RMPs) to prevent accidental releases of these substances, U.S. EPA regulations are set forth in 40 CFR Part 68. In California, the California Accidental Release Prevention (CalARP) Program regulation (CCR Title 19, Division 2, Chapter 4.5) was issued by the Governor’s Office of Emergency Services (OES). RMPs consist of three main elements: a hazard assessment that includes off-site consequences analyses and a five-year accident history, a prevention program, and an emergency response program.

Affected facilities that store materials are required to have a Spill Prevention Control and Countermeasures (SPCC) Plan per the requirements of 40 Code of Federal Regulations, Section 112. The SPCC is designed to prevent spills from on-site facilities and includes requirements for secondary containment, provides emergency response procedures, establishes training requirements, and so forth.

The Hazardous Materials Transportation (HMT) Act is the federal legislation that regulates transportation of hazardous materials. The primary regulatory authorities are the U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment (49 CFR Subchapter C). The California Department of Transportation (Caltrans) sets standards for trucks in California. The regulations are enforced by the California Highway Patrol.

California Assembly Bill 2185 requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to government agencies (i.e., fire departments), an inventory of the hazardous materials, an emergency response plan, and an employee training program. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

Contra Costa County has adopted an industrial safety ordinance that addresses the human factors that lead to accidents. The ordinance requires stationary sources to develop a written human factors program that includes considers human factors as part of process hazards analyses, incident investigations, training, operating procedures, among others.

Discussion of Impacts

VII a-b. It is expected that the rule will lead to a reduction in NO_x emissions. Facilities are expected to comply by installing DLN technology, increasing ammonia injection or enhance existing steam or water injection. The use of DLN and water or steam injection would not result in an increase in hazards associated with operation of the gas turbines.

Ammonia is used to react with the NO_x, in the presence of a catalyst, to form nitrogen gas and water. Ammonia is considered to be a hazardous chemical. Ammonia has acute and chronic non-cancer health effects and also contributes to ambient PM₁₀ emissions under some circumstances. Three facilities are expected to comply using increased ammonia injection. All three facilities currently use ammonia injection and, thus, currently have ammonia storage tanks, and currently transport ammonia to their facilities. Facilities can use either aqueous ammonia or anhydrous ammonia. The use of anhydrous ammonia involves greater risk than aqueous ammonia because it is stored and transported under pressure. In the event of a leak or rupture of a tank, anhydrous ammonia is released and vaporizes into the gaseous form, which is its normal state at atmospheric pressure and produces a toxic cloud. Aqueous ammonia is a liquid at ambient temperatures and gas is only produced when a liquid pool from a spill evaporates. Under current OES regulations implementing the CalARP requirements, aqueous ammonia is regulated under California Health and Safety Code Section 2770.1.

The proposed amendments to Rule 9-9 would require that three facilities use 3 percent to 10 percent more ammonia, which would increase the number of trucks needed to deliver ammonia. The proposed

amendments are expected to generate a maximum of one additional truck delivery of ammonia per day within the Bay Area. Deliveries of ammonia would be made by tanker truck via public roads. The transport of ammonia and other hazardous the Hazardous Materials Transportation (HMT) Act. The primary regulatory authorities are the U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires transporters to follow specific safety standards and that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment (49 CFR Subchapter C). The California Department of Transportation (Caltrans) sets standards for trucks in California. The regulations are enforced by the California Highway Patrol.

The proposed amendments to Rule 9-9 are not expected to generate significant adverse hazard impacts because the increase in ammonia use within the Bay Area is small and limited to three facilities, and the numerous regulations that exist minimize the potential hazard impacts. Therefore, the impacts of the proposed project on hazards are expected to be less than significant.

VII c. The proposed rule amendments are expected to reduce NOx emissions from existing stationary gas turbines at affected facilities. The amendments to the rule will not require or change the use or storage of any hazardous material. The proposed amendment could result in additional ammonia emissions associated with ammonia slip from the three facilities that use ammonia injection. However, permit conditions are imposed on facilities that use ammonia injection so that no significant increase in ammonia slip is expected. Therefore, no increase in the potential for releases of hazardous materials and their related impacts to schools is expected.

VII d. No impacts on hazardous material sites are anticipated from the proposed rule amendments that would apply to existing operations. Some of the affected facilities may be located on the hazardous materials sites list pursuant to Government Code Section 65962.5. However, the proposed rule amendments would have no affect on hazardous materials nor would the amendment create a significant hazard to the public or environment. The stationary gas turbines already exist and are located within the confines of existing industrial facilities. The proposed rule amendments neither require, nor are likely to result in, activities that would affect hazardous materials or existing site contamination. Therefore, no impacts on hazards are expected.

VII e – f. No impacts on airports or airport land use plans are anticipated from the proposed rule amendments, which would apply to operations at existing facilities. The stationary gas turbines already exist and are located within the confines of existing industrial facilities. No construction activities are expected outside of the confines of the existing facilities and the facilities that expect to install DLN or enhance steam or water injection are not located near an airport. Therefore, no impacts on hazards at airports are expected.

VII g. No impacts on emergency response plans are anticipated from the proposed rule amendments that would apply to existing facility operations. Each affected facility has prepared an emergency response plan; however, the stationary gas turbines already exist and are located within the confines of existing facilities. The proposed rule amendments neither require, nor are likely to result in, activities that would impact the emergency response plan and minor construction activities for the installation of DLN or enhancements to steam or water injection are only required at a few facilities. Therefore, no impacts on emergency response plans are expected.

VII h. No increase in hazards related to wildfires are anticipated from the proposed rule amendments. The stationary gas turbines affected by the proposed amendments already exist and are located within the confines of existing facilities. These facilities have already been graded and appropriate fire barriers have already been created to minimize fire hazards. No increase in exposure to wildfires will occur due to the proposed amendments to Rule 9-9.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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VIII. HYDROLOGY AND WATER QUALITY.

Would the project:

a)	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e)	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f)	Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g)	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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| h) | Place within a 100-year flood hazard area structures that would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) | Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) | Inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and affected environment vary substantially throughout the area and include commercial, industrial, residential, agricultural, and open space uses.

The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area. Affected facilities are generally surrounded by other commercial and industrial facilities. Reservoirs and drainage streams are located throughout the area and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located throughout the Bay Area.

The affected facilities are located within the San Francisco Bay Area Hydrologic Basin. The primary regional groundwater water-bearing formations include the recent and Pleistocene (up to two million years old) alluvial deposits and the Pleistocene Huichica formation. Salinity within the unconfined alluvium appears to increase with depth to at least 300 feet. Water of the Huichica formation tends to be soft and relatively high in bicarbonate, although usable for domestic and irrigation needs.

Regulatory Background

The Federal Clean Water Act of 1972 primarily establishes regulations for pollutant discharges into surface waters in order to protect and maintain the quality and integrity of the nation's waters. This Act requires industries that discharge wastewater to municipal sewer systems to meet pretreatment standards. The regulations authorize the U.S. EPA to set the pretreatment standards. The regulations also allow the local treatment plants to set more stringent wastewater discharge requirements, if necessary, to meet local conditions.

The 1987 amendments to the Clean Water Act enabled the U.S. EPA to regulate, under the National Pollutant Discharge Elimination System (NPDES) program, discharges from industries and large municipal sewer systems. The U.S. EPA set initial permit application requirements in 1990. The State of California, through the State Water Resources Control Board, has authority to issue NPDES permits, which meet U.S. EPA requirements, to specified industries.

The Porter-Cologne Water Quality Act is California's primary water quality control law. It implements the state's responsibilities under the Federal Clean Water Act but also establishes state wastewater discharge requirements. The RWQCB administers the state requirements as specified under the Porter-Cologne Water Quality Act, which include storm water discharge permits. The water quality in the Bay Area is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board.

In response to the Federal Act, the State Water Resources Control Board prepared two state-wide plans in 1991 and 1995 that address storm water runoff: the California Inland Surface Waters Plan and the California Enclosed Bays and Estuaries Plan. Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. San Francisco Bay, and its constituents parts, including Carquinez Strait and Suisun Bay, fall under this category.

The San Francisco Bay Basin Plan identifies the: (1) beneficial water uses that need to be protected; (2) the water quality objectives needed to protect the designated beneficial water uses; and (3) strategies and time schedules for achieving the water quality objectives. The beneficial uses of the Carquinez Strait that must be protected which include water contact and non-contact recreation, navigation, ocean commercial and sport fishing, wildlife habitat, estuarine habitat, fish spawning and migration, industrial process and service supply, and preservation of rare and endangered species. The Carquinez Strait and Suisun Bay are included on the 1998 California list as impaired water bodies due to the presence of chlordane, copper, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, PCBs, and selenium.

Discussion of Impacts

VIII a, f. No significant adverse impacts on hydrology/water quality resources are anticipated from the proposed rule amendments, which would apply to existing industrial facilities. The facilities affected by the proposed rule amendments are required to treat and monitor wastewater discharges, as applicable, from their facilities. The proposed rule amendments is expected to require additional water use for steam or water injection; however, not increase in wastewater discharge is expected. Therefore, no violation of any water quality standards or waste discharge requirements, and no decrease in water quality is expected.

VIII b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. The steam or water injection option may result in a slight increase in water consumption. The 2005 Ozone Strategy addressed the impacts of control measures on water demand. The potential water demand associated with proposed control measures in the 2005 Ozone Strategy (including Control Measure SS-14) was determined to be within the capacity of water supplied from various sources in the Bay Area (estimated water demand of about 1,880 billion gallons per year in 2010) (BAAQMD, 2006) and is not considered significant compared with current and projected future demand and supply. While there are projected drought-year shortages in some regions of California, these shortages would occur regardless of the proposed control measures. The proposed amendments are not expected to deplete groundwater supplies or interfere with groundwater recharge. Therefore, no impacts on groundwater supplies or are expected due to the proposed Rule 9-9 amendments.

VIII c - f. Facilities are expected to comply with the proposed amendments to Rule 9-9 by installing DLN technology, increasing ammonia injection or enhanced steam or water injection. All affected facilities are

located in industrial and commercial areas, where storm water drainage has been controlled. The installation of DLN at one facility is expected to require minor construction activities; therefore, no major construction activities are expected to be required due to the proposed rule amendments. Therefore the proposed amendments are not expected to substantially alter the existing drainage or drainage patterns of the site, result in erosion or siltation, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. Nor are the proposed amendments expected to create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The proposed amendments are not expected to substantially degrade water quality. Therefore, no impacts to storm water runoff are expected.

VIII g – i. The facilities affected by the proposed rule amendments are located within industrial and commercial areas. No major construction activities are expected and all construction activities will occur within the confines of existing facilities. Industrial and commercial facilities are generally located to avoid flood zone areas and other areas subject to flooding. The proposed amendments are not expected to place any additional structures within 100-year flood zones or other areas subject to flooding. Therefore, no impacts due to flooding are expected.

VIII j. The facilities affected by the proposed rule amendments are located within industrial and commercial areas. No major construction activities are expected and all construction activities will occur within the confines of existing facilities. The proposed amendments are not expected to place any additional structures within areas subject to inundation by seiche, tsunami or mudflow. Therefore, no impacts on hydrology/water due to seiche, tsunami or mudflow are expected.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area. Most affected facilities are adjacent to industrial and commercial land uses.

Regulatory Background

Land uses are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

IX a-c. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within heavy industrial areas. Facilities are expected to comply with Rule 9-9 by installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, minor construction activities would only be required for installing DLN technology or enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to land use are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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X. MINERAL RESOURCES. Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

Regulatory Background

Mineral resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

X a-b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Construction activities are only expected at one facility and are expected to occur within the confines of the existing facility. The proposed rule amendments are not associated with any action that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, no impacts on mineral resources are expected.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. NOISE. Would the project:				
a) Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Expose persons to or generate of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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|----|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| e) | Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) | Be located within the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
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Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area. Most affected facilities are surrounded by other commercial and industrial facilities.

Regulatory Background

Noise issues related to construction and operation activities are addressed in local General Plan policies and local noise ordinance standards. The General Plan and noise ordinances generally establish allowable noise limits within different land uses including residential areas, other sensitive use areas (e.g., schools, churches, hospitals, and libraries), commercial areas, and industrial areas.

Discussion of Impacts

XI a-f. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. The rule amendments impose limitations on the NO_x emissions from stationary gas. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology or enhancing existing steam or water injection. These construction activities would involve minor changes to existing gas turbines within an industrial area. Noise impacts during the construction period are expected to be minimal and occur during daylight hours. Noise related to construction activities would cease following completion of the construction phase. No increase in noise is expected due to operation of the modified equipment. All of the technologies that are expected to be used to comply with the proposed rule amendment are not expected to result in an increase in noise. Increased or enhanced ammonia, steam or water injection, is not expected to result in any physical changes to the facilities and would not generate additional noise. No increase in noise is expected related to DLN technology. Therefore, no impacts to noise are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

Regulatory Background

Population and housing growth and resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

XII a. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology or enhancing steam or water injection. Construction activities are expected to be minor and the construction workers are expected to come from the existing labor pool within the Bay Area. The rule amendment is not expected to require any additional permanent workers at any of the effected facilities. No additional workers are expected to be required at the affected facilities; therefore no impacts to population or housing are expected due to the proposed project.

XII b-c. The stationary gas turbines already exist and are located within the confines of existing facilities within industrial areas. No housing would be impacted or removed by the proposed rule amendments and no displacement of housing would occur. Therefore, no impacts on population/housing are expected.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XIII. PUBLIC SERVICES. Would the project:

- a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

Given the large area covered by the BAAQMD, public services are provided by a wide variety of local agencies. Fire protection and police protection/law enforcement services within the BAAQMD are provided by various districts, organizations, and agencies. There are several school districts, private schools, and park departments within the BAAQMD. Public facilities within the BAAQMD are managed by different county, city, and special-use districts.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate public services are maintained within the local jurisdiction.

Discussion of Impacts

XIII a. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Compliance with the proposed rule amendments is expected to be achieved using DLN technology, increasing ammonia injection or enhanced steam or water injection. Construction activities would only be required for installing DLN technology or enhancing steam or water injection and these construction activities are expected to be minor. The other affected facilities are expected to comply by making operational changes. The proposed rule amendments are not expected to require additional fire protection or police protection as facility modifications would occur within the confines of existing industrial areas. These facilities are generally fenced and entry is restricted to authorized individuals. The rule amendments would not require the use of any new chemicals or create new hazards. Therefore, no increase in the need for fire or police protection is required.

The proposed rule amendments are not expected to require additional workers at the facilities or result in population growth so no impacts on schools or parks are expected. Therefore, no impacts on public services are expected.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XIV. RECREATION. Would the project:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that there are numerous areas for recreational activities. The facilities affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. Public recreational land uses are generally not located within the confines of industrial facilities.

Regulatory Background

Recreational areas are generally protected and regulated by the City and/or County General Plans at the local level through land use and zoning requirements. Some parks and recreation areas are designated and protected by state and federal regulations.

Discussion of Impacts

XIV a-b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Construction activities would only be required for installing DLN technology or enhancing steam or water injection and construction workers are expected to come from the existing labor pool in the Bay Area. The proposed rule amendments are not expected to require additional permanent workers at the affected facilities or result in population growth so no impacts on recreation are expected. Therefore, no impacts on recreation are expected.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XV. TRANSPORTATION/TRAFFIC. Would the project:

a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards because of a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)? ☐ ☐ ☐ ☒

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles). Transportation systems located within the Bay Area include railroads, airports, waterways, and highways. The Port of Oakland and three international airports in the area serve as hubs for commerce and transportation. The transportation infrastructure for vehicles and trucks in the Bay Area ranges from single lane roadways to multilane interstate highways. The Bay Area contains over 19,600 miles of local streets and roads, and over 1,400 miles of state highways. In addition, there are over 9,040 transit route miles of services including rapid rail, light rail, commuter, diesel and electric buses, cable cars, and ferries. The Bay Area also has an extensive local system of bicycle routes and pedestrian paths and sidewalks. At a regional level, the share of workers driving alone was about 68 percent in 2000. The portion of commuters that carpool was about 12.9 percent in 2000. About 3.2 percent of commuters walked to work in 2000. In addition, other modes of travel (bicycle, motorcycle, etc.), account for 2.2 percent of commuters in 2000 (MTC, 2004).

Cars, buses, and commercial vehicles travel about 143 million miles a day (2000) on the Bay Area Freeways and local roads. Transit serves about 1.7 million riders on the average weekday (MTC, 2004).

The region is served by numerous interstate and U.S. freeways. On the west side of San Francisco Bay, Interstate 280 and U.S. 101 run north-south. U.S. 101 continues north of San Francisco into Marin County. Interstates 880 and 660 run north-south on the east side of the Bay. Interstate 80 starts in San Francisco, crosses the Bay Bridge, and runs northeast toward Sacramento. Interstate 80 is a six-lane north-south freeway which connects Contra Costa County to Solano County via the Carquinez Bridge. State Routes 29 and 84, both highways that allow at-grade crossings in certain parts of the region, become freeways that run east-west, and cross the Bay. Interstate 580 starts in San Rafael, crosses the Richmond-San Rafael Bridge, joins with Interstate 80, runs through Oakland, and then runs eastward toward Livermore. From the Benicia-Martinez Bridge, Interstate 680 extends north to Interstate 80 in Cordelia. Caltrans constructed a second freeway bridge adjacent and east of the existing Benicia-Martinez Bridge. The new bridge consists of five northbound traffic lanes. The existing bridge was re-striped to accommodate four lanes for southbound traffic. Interstate 780 is a four lane, east-west freeway extending from the Benicia-Martinez Bridge west to I-80 in Vallejo.

Regulatory Background

Transportation planning is usually conducted at the state and county level. Planning for interstate highways is generally done by the California Department of Transportation.

Most local counties maintain a transportation agency that has the duties of transportation planning and administration of improvement projects within the county and implements the Transportation Improvement and Growth Management Program, and the congestion management plans (CMPs). The CMP identifies a system of state highways and regionally significant principal arterials and specifies level of service standards for those roadways.

Discussion of Impacts

XV a-b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Minor construction activities for the installation of DLN technology and enhancing existing steam or water injection technology are expected to occur, but no major traffic impacts are expected due to construction activities associated with the proposed rule amendments. The increased or enhanced ammonia option may result in a slight increase in ammonia deliveries (approximately one truck per day) within the Bay Area. This increase would not be expected to affect traffic patterns in the Bay Area or result in any adverse impacts at local intersections. Therefore, no impacts to traffic are expected.

XV c. The proposed rule amendments include minor modifications to the operation of existing facilities. The proposed rule amendments are not expected to involve the delivery of materials via air so no increase and no adverse impacts in air traffic are expected.

XV d - e. The proposed rule amendments are not expected to increase traffic hazards or create incompatible uses at or adjacent to the site. Emergency access provided at the industrial facilities, will continue to be maintained and will not be impacted by the proposed rule amendments.

XV f. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. The proposed rule amendments is only expected to require minor construction activities at some facilities and will only temporarily increase the number of workers at the facility. Parking required for construction workers is expected to be provided onsite. No increase in permanent workers is expected. Therefore, the proposed rule amendments will not result in impacts on parking.

XV g. The proposed rule amendments are not expected to result in any noticeable increase in traffic. Therefore, the proposed rule amendments are not expected to conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks).

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than- Significant Impact	No Impact
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XVI. UTILITIES AND SERVICE SYSTEMS.

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area.

Given the large area covered by the BAAQMD, public utilities are provided by a wide variety of local agencies. The most affected facilities have wastewater and storm water treatment facilities and discharge treated wastewater under the requirements of NPDES permits.

Water is supplied to affected facilities by several water purveyors in the Bay Area. Solid waste is handled through a variety of municipalities, through recycling activities and at disposal sites.

There are no hazardous waste disposal sites within the jurisdiction of the BAAQMD. Hazardous waste generated at area facilities, which is not reused on-site, or recycled off-site, is disposed of at a licensed in-state hazardous waste disposal facility. Two such facilities are the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in King's County, and the Safety-Kleen facility in Buttonwillow (Kern County). Hazardous waste can also be transported to permitted facilities outside of California. The nearest

out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and EnviroSafe Services of Idaho, Inc., in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate utilities and service systems are maintained within the local jurisdiction.

Discussion of Impacts

XVI a, b, d and e. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. The proposed amendments will require installation of DLN technology, increased ammonia injection, or enhanced steam or water injection. The steam or water injection option may result in a slight increase in water consumption. The 2005 Ozone Strategy addressed the impacts on water demand. The potential water demand was determined to be within the capacity of water supplied from various sources in the Bay Area (estimated water demand of about 1,880 billion gallons per year in 2010) (CARB, 2000) and is not considered significant compared with current and projected future demand and supply. While there are projected drought-year shortages in some regions of California, these shortages would occur regardless of the proposed control measures. Based upon the above considerations, no significant adverse impacts on water demand were expected due to implementation of the control measures within the 2005 Ozone Strategy. Therefore, no significant impacts on water use are expected due to the proposed Rule 9-9 amendments. No significant adverse impacts on utilities and service systems are anticipated from the proposed rule amendments that would apply to existing facilities with stationary gas turbines.

The proposed rule amendment is not expected to generate additional wastewater generated by the affected facilities. The increase in water consumption would be associated with increased or enhanced steam injection. The incremental increase in steam use is not expected to generate additional wastewater streams. Therefore no impacts on wastewater treatment requirements or wastewater treatment facilities is expected.

XVI c. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology or enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. Therefore, no changes to or increases in storm water are expected due to the proposed rule amendments.

XVI f and g. The proposed rule amendments would not affect the ability of facilities to comply with federal, state, and local statutes and regulations related to solid waste. No significant impacts on waste generation are expected from the proposed rule amendments.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

XVII a. The proposed rule amendments do not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory, as discussed in the previous sections of the CEQA checklist. The proposed rule amendments are expected to result in emission reductions from facilities with stationary gas turbines thus providing a beneficial air quality impact and improvement in air quality. As discussed in Section IV, Biological Resources and Section V, Cultural Resources, no impacts are expected to biological or cultural resources.

XVII b. The proposed Rule 9-9 amendments are expected to result in emission reductions of NO_x from affected facilities with stationary gas turbines, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone, thus reducing the potential

health impacts due to ozone exposure. The proposed rule amendments do not have adverse environmental impacts that are limited individually, but cumulatively considerable when considered in conjunction with other regulatory control projects, including similar impacts from other NO_x control projects. The proposed rule amendments are not expected to have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. No significant adverse impacts are expected.

XVII c. The proposed Rule 9-9 amendments are expected to result in emission reductions of nitrogen oxides from affected facilities with stationary gas turbines, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone, thus reducing the potential health impacts due to ozone exposure. As discussed under **Section III. Air Quality and Section VII. Hazards and Hazardous Materials**, the proposed rule amendments have a potential to create odors from increased ammonia emissions, increase carbon monoxide emissions, create a slight increase in the amount of ammonia transported on public roadways, and, consequently, increase the hazard from a potential spill of ammonia during transportation. Each of these could have an impact on human health. However, as discussed in those sections, the small increase in ammonia usage and transport, existing permit conditions on turbines and existing law regarding transportation of hazardous materials would prevent any significant impacts from the proposed amendments.

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Chapter 4**References**

- Bay Area Air Quality Management District (BAAQMD), 1993. Staff Report, Proposed Regulation 9, Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries, December 3, 1993.
- BAAQMD, 1995. Staff Report, Proposed Regulation 9, Rule 11: Nitrogen Oxides and Carbon Monoxide from Electric Power Generating Steam Boilers, October 23, 1995.
- BAAQMD, 2001. Revised 2001 San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard, adopted October 24, 2001.
- BAAQMD, 2001. Toxic Air Contaminant 2000 Annual Report. December 2001.
- BAAQMD, 2002. 2002 BAAQMD Ambient Air Quality Data.
- BAAQMD, 2004. Initial Study/Negative Declaration for the Amendments to Bay Area Air Quality Management District Regulation 8, Rule 8. June 2004.
- BAAQMD, 2005. Draft Staff Report, Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants, August 12, 2005.
- BAAQMD, 2006. Bay Area 2005 Ozone Strategy, January 4, 2006
- BAAQMD, 2006. Workshop Report, Proposed Amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines, April 2006.
- BAAQMD, 2006. Initial Study/Negative Declaration for the Amendments to Bay Area Air Quality Management District Regulation 8, Rule 5. September 2006.
- OSHA, 2005. Safety and Health Topics, Ammonia Refrigeration.
<http://www.osha.gov/SLTC/ammoniarefrigeration/>.